

Kevin presented the simulation and plans to reduce the β -function on the Booster stripping foil using 1/2 integer stopband correctors. As we know that emittance growth at the stripping foil is proportional to the number of turns, β -function and scattering angle: $\Delta\epsilon = N\beta\theta^2$. The material and thickness of the foil affect the scatter angle, and they are optimized already. The simulations show that with ν_x and ν_y near half integer (set at 4.52), the stopband correctors can generate large β wave at injection energy (200MeV) which indeed reduces both β -functions at the foil location. Such a tune is only needed at injection and will be ramped up as acceleration starts. In general, the modeling of the Booster is in a better shape than that of the AGS, as evidenced by the fact that NSRL setup with different energies agree well with the model. A beam study (with iron beam) has been planned for the Booster in parallel with the ongoing NSRL running. The idea is to run various correctors and measure the difference orbits. Comparison of these difference orbit with model prediction would give us confidence to use the model to predict the emittance reduction in the real operation. The predicted difference orbit is in the order of 0.4mm while the pickup electrodes resolution is in the order of 0.1mm (of course depending on the intensity, too). Mei asked if a local β -function bump can give β -function reduction without large β wave. Kevin responded that it requires new power supply while the current scheme is free except manpower. Woody commented that the number of turns on the foil can be reduced if the source current is higher. This scheme probably has been used in run6 when the Rubidium temperature was raised to get higher current and short pulse width when filling RHIC. When asked question about direct β -function measurement in the Booster, Leif responded that we need turn-by-turn BPMs, besides an AC dipole.

Leif advocated that a series of new webpages for offline data analysis have been created. People are encouraged to use these webpages. Some recipes for linking .xls files etc. are needed (Todd is fast enough to add one in the elog after the meeting).

Solenoid snake was used last run in the hope to reduce coupling at higher energy. It did not show appreciable effect. Haixin asked if we could upgrade the solenoid snake control, as it was painful to operate last run. The control application does not control current directly but the power supply voltage. It also does not have digital current readback. These issues will be followed up with relevant experts.

Haixin